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DEPARTMENT OF THE INTERIOR

Fish and Wildlife Service

[FWS–R7–ES–2016–N092]

[FF07CAMM00–FX–FXFR133707REG04]

Marine Mammals; Incidental Take During Specified Activities; Proposed Incidental Harassment Authorization for Pacific Walrus in Alaska and Associated Federal Waters

AGENCY: Fish and Wildlife Service, Interior.

ACTION: Notice of receipt of application and proposed incidental harassment authorization; availability of draft environmental assessment; request for comments.

SUMMARY: We, the U.S. Fish and Wildlife Service (Service), in response to a request under the Marine Mammal Protection Act of 1972 (MMPA), as amended, from Quintillion Subsea Operation, LLC, propose to authorize the incidental taking by

harassment of small numbers of Pacific walruses from July 15–November 15, 2016. The area specified for inclusion in the proposed authorization includes Federal waters of the northern Bering, Chukchi, and Southern Beaufort Seas, the marine waters of the State of Alaska, and coastal land adjacent to Nome, Kotzebue, Point Hope, Wainwright, Barrow, and Oliktok Point, as shown in Figure 1. The applicant has requested this authorization for its planned cable-laying activities. We anticipate no take by injury or death and include none in this proposed authorization, which if finalized, will be for take by harassment only.

DATES: We will consider comments we receive on or before **[INSERT DATE 30 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER]**.

ADDRESSES:

Document availability: The incidental harassment authorization request, associated draft environmental assessment, and literature cited, are available for viewing at <http://www.fws.gov/alaska/fisheries/mmm/iha.htm>.

Comments submission: You may submit comments on the proposed incidental harassment authorization and associated draft environmental assessment by one of the following methods:

- *U.S. mail or hand-delivery:* Public Comments Processing, Attn: Kimberly Klein, U.S. Fish and Wildlife Service, MS 341, 1011 East Tudor Road, Anchorage, AK 99503;

- *Fax:* 907–786–3816, Attn: Kimberly Klein; or
- Email comments to: *FW7_AK_Marine_Mammals@fws.gov*.

Please indicate whether your comments apply to the proposed incidental harassment authorization or the draft environmental assessment. We will post all hardcopy comments on <http://www.fws.gov/alaska/fisheries/mmm/iha.htm>. See **Request for Public Comments** below for more information.

FOR FURTHER INFORMATION CONTACT: Copies of the application, the list of references used in the notice, and other supporting materials may be downloaded from the web at: <http://www.fws.gov/alaska/fisheries/mmm/iha.htm>. You may also contact Kimberly Klein, by mail at Marine Mammals Management, U.S. Fish and Wildlife Service, MS 341, 1011 East Tudor Road, Anchorage, AK 99503; by email at kimberly_klein@fws.gov; or by telephone at 1–800–362–5148, to request documents.

SUPPLEMENTARY INFORMATION: In response to a request from Quintillion Subsea Operation, LLC (Quintillion or “the applicant”), we propose to authorize the incidental taking by harassment of small numbers of Pacific walruses from July 15–November 15, 2016, under section 101(a)(5)(D) of the Marine Mammal Protection Act of 1972 (MMPA), as amended. Quintillion has requested this authorization for its planned cable-laying activities in Federal waters of the northern Bering, Chukchi, and southwestern Beaufort Seas, the marine waters of the State of Alaska, and coastal land adjacent to Nome, Kotzebue, Point Hope, Wainwright, Barrow, and Oliktok Point, as

specified in Figure 1. We anticipate no take by injury or death and include none in this proposed authorization, which, if finalized, would be for take by harassment only.

Executive Summary

Why We Need To Publish a Draft Incidental Harassment Authorization (IHA)

Section 101(a)(5)(D) of the MMPA (16 U.S.C. 1361 *et seq.*) directs the Service to allow, upon request, and for periods of not more than 1 year, the incidental, but not intentional take of small numbers of marine mammals by U.S. citizens who engage in a specified activity (other than commercial fishing) within a specified geographical area if certain findings are made regarding the effects of the take. The Service was petitioned by Quintillion on October 29, 2015, to provide authorization for the incidental take by harassment of Pacific walruses (*Odobenus rosmarus divergens*) and polar bears (*Ursus maritimus*) for a cable-laying project, which is intended to improve broadband internet service in northern Alaska. After receiving comments on the initial application, Quintillion made revisions and submitted an updated IHA application on February 3, 2016. Quintillion subsequently withdrew its application for incidental take of polar bears on April 25, 2016, citing several factors, including changes to the project that reduce the already-low probability of encounters with polar bears. This document announces and explains the Service's proposed authorization of incidental take of small numbers of Pacific walruses from Quintillion's cable-laying project in the State of Alaska and associated Federal waters from July 15–November 15, 2016.

The Effect of this Authorization

The MMPA allows the Service to authorize, upon request, the incidental take of small numbers of marine mammals as part of a specified activity within a specified geographic region. In this case, the Service may authorize the incidental, but not intentional, take by harassment of small numbers of Pacific walrus by Quintillion during the specified cable-laying project activities if we find that such harassment during each period will:

- Have no more than a “negligible impact” on the species or stock of Pacific walrus; and
- Not have an “unmitigable adverse impact” on the availability of the species or stock for taking for subsistence uses.

The Service may stipulate the permissible methods of taking and require mitigation, monitoring, and reporting of such takings, which are meant to reduce or minimize negative impacts to the Pacific walrus.

Request for Public Comments

We intend that any final action resulting from this proposal will be as accurate and as effective as possible. Therefore, we request comments or suggestions on this proposed authorization. We particularly seek comments concerning:

- Whether the proposed authorization, including the proposed activities, will have a negligible impact on the species or stock of Pacific walrus.
- Whether the proposed authorization will ensure that an unmitigable adverse

impact on the availability of Pacific walruses for subsistence taking does not occur.

- Whether there are any additional provisions we may wish to consider for ensuring the conservation of the Pacific walrus.

You may submit your comments and materials concerning this proposed authorization by one of the methods listed in **ADDRESSES**.

If you submit a comment via *FW7_AK_Marine_Mammals@fws.gov*, your entire comment—including any personal identifying information—may be available to the public. If you submit a hardcopy comment that includes personal identifying information, you may request at the top of your document that we withhold this information from public review. However, we cannot guarantee that we will be able to do so. We will post all hardcopy comments on *<http://www.fws.gov/alaska/fisheries/mmm/iha.htm>*.

Background

Section 101(a)(5)(D) of the MMPA, as amended (16 U.S.C. 1371(a)(5)(D)), authorizes the Secretary of the Interior (the Secretary) to allow, upon request of a citizen and subject to such conditions as the Secretary may specify, the incidental but not intentional taking by harassment of small numbers of marine mammals of a species or population stock by such citizens who are engaging in a specified activity within a specified region. Incidental taking may be authorized only if the Secretary finds that such take during each period concerned will have a negligible impact on such species or stock, and will not have an unmitigable adverse impact on the availability of such species or

stock for subsistence use.

Section 101(a)(5)(D) of the MMPA establishes a process by which citizens of the United States can apply for an authorization for incidental take of small numbers of marine mammals where the take will be limited to harassment during a period of not more than 1 year. We refer to these incidental harassment authorizations as “IHAs.”

The term “take,” as defined by the MMPA, means to harass, hunt, capture, or kill, or to attempt to harass, hunt, capture, or kill any marine mammal. Harassment, as defined by the MMPA, means any act of pursuit, torment, or annoyance which: (i) has the potential to injure a marine mammal or marine mammal stock in the wild (the MMPA calls this “Level A harassment”), or (ii) has the potential to disturb a marine mammal or marine mammal stock in the wild by causing disruption of behavioral patterns, including, but not limited to, migration, breathing, nursing, breeding, feeding, or sheltering (the MMPA calls this “Level B harassment”).

The terms “small numbers,” “negligible impact,” and “unmitigable adverse impact” are defined in 50 CFR 18.27, the Service’s regulations governing take of small numbers of marine mammals incidental to specified activities. “Small numbers” is defined as a portion of a marine mammal species or stock whose taking would have a negligible impact on that species or stock. However, we do not rely on that definition here, as it conflates the terms “small numbers” and “negligible impact,” which we recognize as two separate and distinct requirements. Instead, in our small numbers determination, we evaluate whether the number of marine mammals likely to be taken is small relative to the size of the overall population. “Negligible impact” is defined as an

impact resulting from the specified activity that cannot be reasonably expected to, and is not reasonably likely to adversely affect the species or stock through effects on annual rates of recruitment or survival. “Unmitigable adverse impact” is defined as an impact resulting from the specified activity (1) that is likely to reduce the availability of the species to a level insufficient for a harvest to meet subsistence needs by (i) causing the marine mammals to abandon or avoid hunting areas, (ii) directly displacing subsistence users, or (iii) placing physical barriers between the marine mammals and the subsistence hunters; and (2) that cannot be sufficiently mitigated by other measures to increase the availability of marine mammals to allow subsistence needs to be met.

In order to issue an IHA, the Service must set forth the following: (1) permissible methods of taking; (2) means of effecting the least practicable impact on the species or stock and its habitat, paying particular attention to rookeries, mating grounds, and areas of similar significance; and (3) requirements pertaining to the monitoring and reporting of such takings. Habitat areas of significance for Pacific walruses in the project area include (a) marginal sea-ice zones, (b) areas with consistent polynyas in consolidated pack ice or multiyear ice, (c) areas of high benthic productivity, (d) areas where nutrient-rich ocean currents converge, and (e) terrestrial haulouts. The proposed activities will not be conducted in the vicinity of sea ice, eliminating potential impacts to the first two habitat types. Areas of high benthic productivity and convergence of nutrient-rich currents are important because they generate important feeding areas. The Service, therefore, must specify avoidance and minimization measures for effecting the least practicable impact of the proposed action on important feeding areas and terrestrial haulouts.

Summary of Request

On October 29, 2015, Quintillion submitted a request to the Service for the nonlethal taking by harassment of Pacific walruses and polar bears that may occur incidental to a cable-laying project. Quintillion is proposing to install 1,904 kilometers (km) (1,183 miles (mi)) of submerged fiber optic cable on the seafloor of the Bering, Chukchi, and Beaufort Seas off the northern and western coasts of Alaska during the open-water season of 2016. The Quintillion cable project or “the proposed action” consists of a main trunk line and six branching lines with links to the existing terrestrial networks of six rural Alaskan communities. An amendment with updated information was received in February 2016, and Quintillion withdrew its request for incidental take of polar bears on April 25, 2016. A complete copy of Quintillion’s request and supporting documents may be obtained as specified above in **ADDRESSES**

The project is most likely to encounter Pacific walruses in the Chukchi Sea in August and September. The cable-laying activities are proposed for the northern Bering Sea after mid-July when most animals have moved either northward into the Chukchi Sea or southward to Bristol Bay, where no cable-laying activities are proposed. The Southern Beaufort Sea is outside of the normal range of the species and is, therefore, considered “extralimital” to the normal range of the species, and encounters are unlikely. When Pacific walruses are encountered, they may react to the presence of Quintillion’s vessels or the sounds of the cable-laying activities. Thrusters, echo sounders, and beacon transceivers that will be used by the cable-laying ships during this project may generate

noise levels capable of causing acoustic harassment to Pacific walruses in the local area.

Quintillion is requesting incidental take by Level B harassment of Pacific walruses from disruption of behavioral patterns and exposure to sound levels exceeding 160 decibels (dB; all dB levels given herein are re: 1 μ Pa). The number of actual takes from sound exposure will depend upon the number of individuals occurring within the 160-dB ensonification zone. The “ensonification zone” is the area surrounding a sound source where received sound levels may exceed the specified threshold. Quintillion is not requesting authorization for take by Level A harassment. Quintillion does not believe that Level A take will occur because the project is not expected to generate noise levels at or above the level considered by the Service to have the potential to cause injury.

Quintillion estimates that the project will generate sound levels no greater than 180 dB_{rms} (dB_{rms} refers to the root-mean-squared dB level, the square root of the average of the squared sound pressure level over some duration—typically 1 second). Pursuant to conclusions reached by the National Oceanic and Atmospheric Administration (NOAA), the Service considers sound levels above 190 dB_{rms} to have the potential to cause injury to Pacific walruses and result in take due to Level A harassment (e.g., NMFS 1998; HESS 1999).

Prior to issuing an IHA in response to this request, the Service must evaluate the level of activities described in the application, the associated potential impacts to Pacific walruses, and the potential effects on the availability of the species for subsistence use. The Service is tasked with analyzing the impact that the proposed lawful activities will have on Pacific walruses during normal operating procedures.

Description of the Specified Activities and Geographic Area

The planned Quintillion cable project will occur in the marine waters of the northern Bering, Chukchi, and southwestern Beaufort Seas, in waters of the State of Alaska, and on coastal land of Alaska (Figure 1). The main trunk line is 1,317 km (818 mi) in length. The branching lines range between 27 km (17 mi) and 233 km (145 mi) in length and extend between the trunk line and the coastal communities of Nome, Kotzebue, Point Hope, Wainwright, and Barrow. Another branching line will extend to Oliktok Point, located 260 km (162 mi) southeast of Barrow. This line will connect over land with the community of Nuiqsut and the Prudhoe Bay industrial center. Additional project details are available in Quintillion's IHA application, available online at <http://www.fws.gov/alaska/fisheries/mmm/iha.htm>.

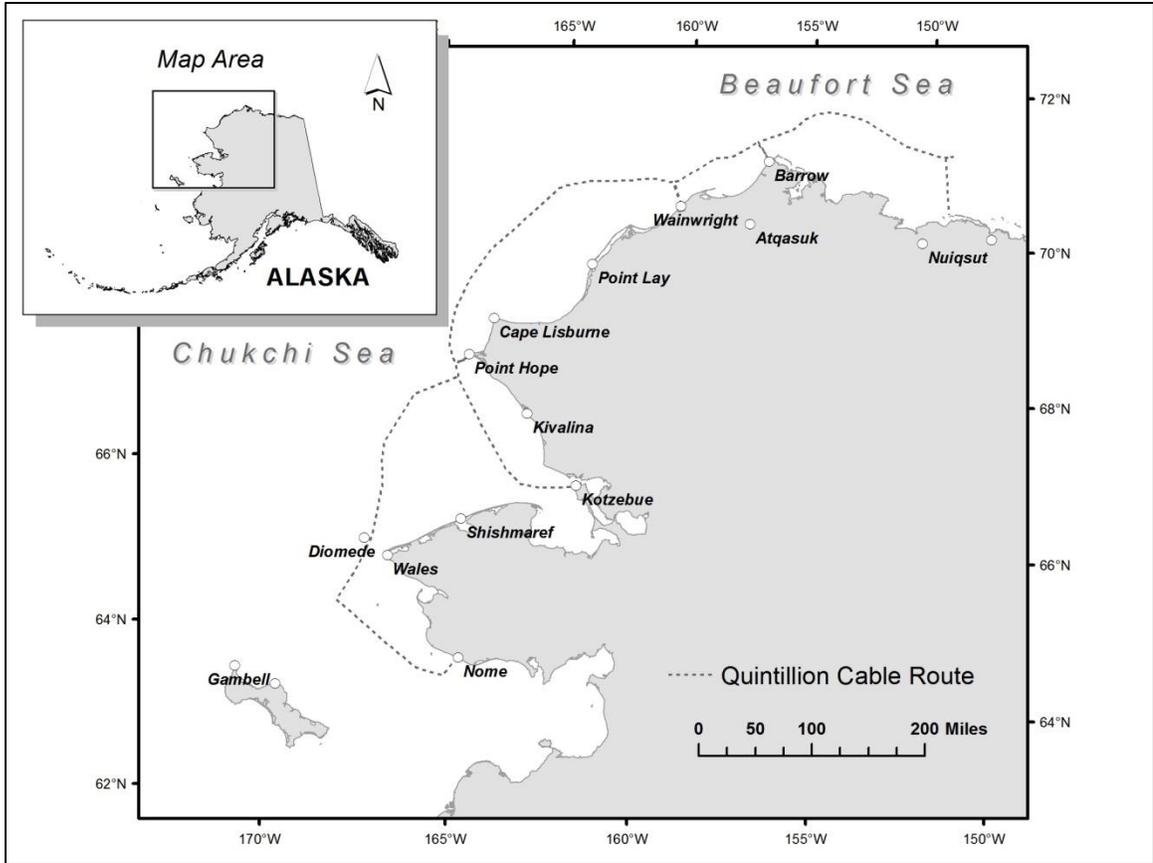


Figure 1. Quintillion Subsea Operations, LLC’s proposed fiber optic cable network.

All activities associated with the IHA request, including mobilization, preliminary work, cable laying, post-burial work, and demobilization of survey and support crews are planned to occur June 1–October 31, 2016. Operations in the Bering Sea will begin near Nome in mid-June and follow the receding sea ice northward into the northern Bering Sea. Work in the Bering Sea between Nome and the Bering Strait is proposed to occur from mid-July to mid-August 2016. Work in the open waters of the Chukchi Sea north of the Bering Strait and in the Beaufort Sea will be done in August and September. Nearshore cable landing work near Oliktok Point, Barrow, Wainwright, and Point Hope will begin in July and will continue in August–October while work is also being

conducted offshore. Work may be conducted day or night. The operations will take approximately 150 days within the work window.

Before cable is laid, a pre-lay grapnel run will be completed along the proposed cable route where burial is required. A grapnel is a small anchor with three or more flukes, used for grappling or dragging. The objective of the operation is the identification and clearance of any seabed debris. The grapnel run will employ towed grapnels and will be conducted by a tugboat. Any debris recovered during these operations will be discharged ashore and disposed of in accordance with applicable regulations. If any debris cannot be recovered, then a local reroute will be planned to avoid the debris.

The cable-laying operations will be conducted from the Cable Ship (C/S) *Ile de Brehat* and/or its sister ships (*Ile de Sein*, *Ile de Batz*). The three ships may operate simultaneously in different locations. All three ships are 140 meters (m) or 460 feet (ft) in length and 23 m (77 ft) in breadth, with berths for a crew of 70. Each ship is propelled by two 4,000-kilowatt (kW) fixed-pitch propellers. Dynamic positioning is maintained by two 1,500-kW bow thrusters, two 1,500-kW aft thrusters, and one 1,500-kW fore thruster. Sound source measurements have not been conducted specific to the C/S *Ile de Brehat*, but acoustic studies for similar vessels have shown thruster noise measurements of 171–180 dB_{rms} at 1 m (Nedwell *et al.* 2003; Samsung 2009; Deepwater Wind 2012).

Support vessels include a tug and barge that will be primarily used for nearshore operations on the branch lines. Submerged cable components will include the cable, interconnecting hardware, and repeaters. The cable will be placed on the seafloor surface or will be buried. Burial method will depend on bottom substrate, water depth, and

location. Echo sounders, transceivers, and transponders will be used to monitor the water depth and the position of equipment on the seafloor.

Where cable is to be laid on the seafloor surface, the cable ships will install the cable as close as possible to the planned route with the correct amount of cable slack to enable the cable to conform to the contours of the seabed without loops or suspensions. A slack plan will be developed that uses direct bathymetric data and a catenary modeling system to control the ship and the cable payout speeds to ensure the cable is accurately placed. A dive team and the tug and barge will lay cable in nearshore waters too shallow for the *C/S Ile de Brehat*.

Burial methods will depend on water depth. In depths greater than 12 m (39.4 ft), the cable will be buried using a burial plough pulled by the cable ship. The plough is pulled by a tow wire as cable is fed through a depressor that pushes it into a trench. Burial depth is controlled by adjusting the front skids. The normal tow speed is approximately 600 meters per hour (m/hr) (0.37 miles per hour (mph) or 0.32 knots (kn)). During cable laying, the cable ship will not be able to alter course or speed to avoid marine mammals, but the slow speed and constant sound production will provide ample warning, allowing Pacific walrus to retreat before they are close enough to be harmed.

In water depths less than 12 m (39.4 ft), burial will be by a tug-pulled jet sled, tracked Remotely Operated Vehicle (ROV), or by a dive team using hand-jetting equipment, subject to seabed conditions in the area. Burial depths will generally be 2–3 m (6.6–9.8 ft). Nearer to shore, where seasonal ice scouring occurs, the cable will be floated on the surface and then pulled through an existing horizontal directionally drilled bore

pipe to the beach manhole where it will be spliced to the terrestrial cable. The floated cable portion will then be lowered to the seabed by divers and buried (using a burial method as described above) from the bore pipe seaward.

While it is expected that the cable trenches will fill in by natural current processes, it is important to ensure that cable splices and interconnections are fully buried, and that there are no plough skips at locations where burial is critical. To ensure proper burial at critical locations, the ROV will be used to conduct post-lay inspection and burial along an estimated 10 km (6.2 mi) of the burial route.

Description of Marine Mammals in the Area of Specified Activity

The stock of Pacific walrus is composed of a single panmictic population inhabiting the shallow continental shelf waters of the Bering and Chukchi Seas (Lingqvist *et al.* 2009; Berta and Churchill 2012). The size of the stock has never been known with certainty. In 2006, the United States and Russia conducted a joint aerial survey in the pack ice of the Bering Sea using thermal imaging systems and satellite transmitters to count Pacific walrus in the water and hauled out on sea ice. The number within the surveyed area was estimated at 129,000 with 95 percent confidence limits of 55,000 to 507,000 individuals. This estimate is considered a minimum: weather conditions forced termination of the survey before large areas were surveyed (Speckman *et al.* 2011).

Distribution is largely influenced by the extent of the seasonal pack ice and prey densities. From April to June, most of the population migrates from the Bering Sea through the Bering Strait and into the Chukchi Sea. Pacific walrus tend to migrate into

the Chukchi Sea along lead systems that develop in the sea ice. During the open-water season, Pacific walruses are closely associated with the edge of the seasonal pack ice from Russian waters to areas west of Point Barrow, Alaska. Most of these animals remain in the Chukchi Sea throughout the summer months, but a few occasionally range into the Beaufort Sea. Oil and gas industry observers reported 35 sightings east of Point Barrow (~156.5° W) between 1995 and 2012 (Kalxdorff and Bridges 2003; AES Alaska 2015; USFWS unpublished data).

The pack ice usually advances rapidly southward in late fall, and most Pacific walruses return to the Bering Sea by mid- to late-November. During the winter breeding season, three concentration areas form in the Bering Sea where open leads, polynyas, or thin ice occur (Fay *et al.* 1984; Garlich-Miller *et al.* 2011). While the specific location of these groups varies annually depending upon the sea-ice extent, one group generally occurs near the Gulf of Anadyr, another south of St. Lawrence Island, and a third in the southeastern Bering Sea south of Nunivak Island.

Pacific walruses are usually found in waters of 100 m (328 ft) or less although they are capable of diving to greater depths. They use sea ice as a resting platform over feeding areas, as well as for giving birth, nursing, passive transportation, and avoiding predators (Fay 1982; Ray *et al.* 2006). Native hunters have reported incidences of Pacific walruses preying on seals; other items such as fish and birds are occasionally taken (Sheffield and Grebmeier 2009; Seymour *et al.* 2014), but benthic invertebrates are the primary food source. Foraging trips may last for several days, during which the animals dive to the bottom nearly continuously. Most foraging dives last 5–10 minutes, with

surface intervals of 1–2 minutes. The disturbance of the sea floor by foraging Pacific walrus releases nutrients into the water column, provides food for scavenger organisms, contributes to the diversity of the benthic community, and is thought to have a significant influence on the ecology of the Bering and Chukchi Seas (Ray *et al.* 2006).

Bivalve clams of the genera *Macoma*, *Serripes*, and *Mya* appear to be the most important prey based on both stomach contents and prey availability at Pacific walrus feeding areas (Sheffield and Grebmeier 2009). Feder *et al.* (1989) found summer and fall feeding areas in the Chukchi Sea to be dominated by muddy substrates supporting high biomasses of *Macoma calcaria*. Hanna Shoal is the most important foraging area for Pacific walrus (Brueggeman *et al.* 1990, 1991; MacCracken 2012; Jay *et al.* 2012). Jay *et al.* (2012) tracked radio-tagged individuals to estimate areas of foraging and occupancy in the Chukchi Sea during June–November of 2008–2011 (years when sea ice was sparse over the continental shelf) and observed high use areas in the relatively shallow waters of Hanna Shoal. The unique bathymetric and current patterns at Hanna Shoal deposit nutrients from the Bering Sea on the ocean floor where they feed a rich benthic ecosystem. Based on this information, the Service designated 24,600 km² (9,500 mi²) of the Chukchi Sea as the Hanna Shoal Walrus Use Area (HSWUA).

Pacific walrus are social and gregarious animals. They travel and haul out onto ice or land in groups, and spend approximately 20–30 percent of their time out of the water. Hauled-out animals tend to be in close physical contact. Young animals often lie on top of adults. The size of the hauled-out groups can range from a few animals up to several thousand individuals. The largest aggregations occur at land haulouts.

Use of terrestrial haulouts in the eastern Chukchi Sea by large numbers has been common during recent years of low summer sea ice, when the edge of the pack ice has moved north into the deep Arctic Basin where Pacific walrus cannot feed (due to too great a water depth). In recent years, the barrier islands north of Point Lay, Alaska, have held large aggregations of up to 20,000–40,000 animals in late summer and fall (Monson *et al.* 2013). Pacific walrus hauled out near Point Lay have travelled to Hanna Shoal during feeding bouts.

Polar bears are known to prey on Pacific walrus, particularly calves; killer whales (*Orcinus orca*) have been known to take all age classes (Frost *et al.* 1992; Melnikov and Zagrebin 2005). Predation rates are unknown but are thought to be highest near terrestrial haulout sites where large aggregations can be found. Few observations exist of predation upon Pacific walrus farther offshore.

Pacific walrus have been hunted for food and other purposes by coastal-dwelling Alaska Natives and Native peoples of Chukotka, Russian Federation for thousands of years. Combined harvest mortality from 2000–2014 for the United States and Russian Federation averaged 3,207 per year (USFWS unpublished data). This mortality estimate includes corrections for under-reported harvest (U.S. only) and struck and lost animals. Harvest has been declining by about 3 percent per year since 2000 and was exceptionally low in the United States in 2012–2014. Resource managers in Russia have concluded that the population has declined and have reduced harvest quotas in recent years accordingly, based in part on the lower abundance estimate generated from the 2006 survey (Kochnev 2004; Kochnev 2005; Kochnev 2010, pers. comm.; Litovka

2015, pers. comm.). The quota in 2000 was 3000 animals; by 2010, it was just 1300 (Shadbolt *et al.* 2014). However, Russian hunters have never reached the quota (Litovka 2015, pers. comm.).

Detailed information on the biology and status of the species, including a revised stock assessment report announced on April 21, 2014 (79 FR 22154), is available at <http://www.fws.gov/alaska/fisheries/mmm/>.

Potential Impacts of the Activities on Pacific Walruses

Proposed cable-laying activities in the Chukchi Sea may encounter Pacific walruses, but encounters in the Beaufort and Bering Seas are unlikely. The Southern Beaufort Sea east of 153°W is extralimital; encounters are unlikely there. Project activities are scheduled to occur in the northern Bering Sea after mid-July, when most Pacific walruses have moved north into the Chukchi Sea or south to Bristol Bay. No project activities are planned in Bristol Bay or in the Bering Sea south of Nome.

Proposed activities in the Chukchi Sea in July–August have the greatest degree of overlap with areas used by Pacific walruses. Project activities occurring in these areas in September–November may also encounter Pacific walruses. Noise and vessel activities associated with the project have the potential to disrupt normal behavioral patterns including migration, nursing, and feeding. Use of thrusters, echo sounders, and beacon transceivers could generate noise levels capable of causing acoustic harassment near the project area and are discussed in the following section.

Noise

Pacific walruses hear sounds both in air and in water. Kastelein *et al.* (1996) tested the in-air hearing of one individual from 125 hertz (Hz) to 8 kilohertz (kHz) and determined the animal could hear all frequency ranges tested, but the best sensitivity was 250 Hz–2 kHz. Kastelein *et al.* (2002) tested underwater hearing and determined that range of hearing was 1 kHz–12 kHz with greatest sensitivity at 12 kHz. The small sample size of one animal warrants caution; other pinnipeds can hear up to 40 kHz. Many of the noise sources generated by the Quintillion cable project are likely to be audible to Pacific walruses. Exposure to high levels of underwater sound may cause hearing loss in nearby animals and disturbance of animals at greater distances. Sound attenuates in air more rapidly than in water; airborne sound levels likely to be produced by the proposed action are unlikely to cause hearing damage unless animals are very close to the sound source.

Acoustic sources operating during cable laying will include thrusters, plows, jets, ROVs, echo sounders, and positioning beacons. Of these, the dominant source of radiated underwater noise at frequencies less than 200 Hz is propeller cavitation from the vessel propulsion systems (Ross 1976). The cable ships will each maintain dynamic positioning during cable-laying operations by using two 1,500-kW bow thrusters, two 1,500-kW aft thrusters, and one 1,500-kW fore thruster. Sound source measurements have not been conducted specific to the *C/S Ile de Brehat*, but acoustic studies for similar vessels have shown thruster noise measurements of 171–180 dB_{rms} at 1 m (Nedwell *et al.* 2003; Samsung 2009; Deepwater Wind 2012).

Echo sounders, transceivers, and transponders will be used to conduct

hydroacoustic surveys of water depth and to guide the position of the plow and ROV. Sound levels produced by these sources can range from 210–226 dB at 1 m, but are generally at frequencies above the hearing sensitivities of Pacific walruses; typical frequencies are 24 kHz–900 kHz. Some surveys use frequencies as low as 50 Hz or as high as 2 megahertz (MHz). Pulses of sound are produced every 1 to 3 seconds in narrow downward-focused beams; there is very little horizontal propagation of noise. Commercial sonar systems may generate lower frequency side-lobes audible to marine mammals, but these are generally produced at sound levels unlikely to cause harm (Deng et al 2014). Depending on the action, the area, and the acoustics involved, sound from multiple sources may combine synergistically or partly cancel out. Cable ships will not operate simultaneously in close proximity to each other (within 10 km).

Marine mammals in general have variable reactions to noise sources, particularly mobile sources such as marine vessels. Potential impacts from noise include displacement from preferred foraging areas, increased stress, energy expenditure, interference with feeding, masking of communications, or temporary hearing loss. Potential acoustic injuries from exposure to high levels of sound may manifest in the form of temporary or permanent changes in hearing sensitivity. The underwater hearing abilities of the Pacific walrus have not been studied sufficiently to develop species-specific criteria for preventing harmful exposure. Sound pressure level thresholds have been developed for other members of the pinniped taxonomic group, above which exposure is likely to cause behavioral responses and injuries (Finneran 2015).

Historically, NOAA has used 190 dB_{rms} as a threshold for predicting injury to

pinnipeds and 160 dB_{rms} as a threshold for behavioral impacts from exposure to impulse noise (NMFS 1998; HESS 1999). The behavioral response threshold was developed based primarily on observations of marine mammal responses to airgun operations (e.g., Malme *et al.* 1983a, 1983b; Richardson *et al.* 1986, 1995). Southall *et al.* (2007) assessed relevant studies, found considerable variability among pinnipeds, and determined that exposures between ~90–140 dB generally do not appear to induce strong behavioral responses in pinnipeds in water, but an increasing probability of avoidance and other behavioral effects exists in the 120–160-dB range.

The NOAA 190-dB_{rms} injury threshold is an estimate of the sound level likely to cause a permanent shift in hearing thresholds (permanent threshold shift or PTS). This value was modelled from temporary threshold shifts (TTS) observed in pinnipeds (NMFS 1998; HESS 1999). Southall *et al.* (2007) reviewed the literature and derived behavior and injury thresholds based on peak sound pressure levels of 212 dB (peak) and 218 dB (peak) respectively. Because onset of TTS can vary in response to duration of exposure, Southall *et al.* (2007) also derived thresholds based on sound exposure levels (SEL). Sound exposure level can be thought of as a composite metric that represents both the magnitude of a sound and its duration. The study proposed threshold SELs weighted at frequencies of greatest sensitivities for pinnipeds of 171 dB (SEL) and 186 dB (SEL) for behavioral impacts and injury respectively (Southall *et al.* 2007). Kastak *et al.* (2005) found exposures resulting in TTS in pinniped test subjects ranging from 152–174 dB (183–206 dB SEL). Reichmuth *et al.* (2008) demonstrated a persistent TTS, if not a PTS, after 60 seconds of 184 dB SEL. Kastelein (2012) found small but statistically significant

TTSs at approximately 170 dB SEL (136 dB, 60 min) and 178 dB SEL (148 dB, 15 min).

Based on these data, and applying a precautionary approach in the absence of empirical information, we assume it is possible that Pacific walruses exposed to 190-dB or greater sound levels from underwater activities could suffer injury from PTS. Pacific walruses exposed to underwater sound pressure levels greater than 180 dB could suffer temporary shifts in hearing thresholds. Repeated or continuous exposure to sound levels between 160 and 180 dB may also result in TTS, and exposures above 160 dB are more likely to elicit behavioral responses than lower level exposures.

The Service's underwater sound mitigation measures include employing "Protected Species Observers" (PSOs) to establish and monitor 160-dB, 180-dB, and 190-dB isopleth mitigation zones centered on any underwater sound source greater than 160 dB_{rms}. For projects that produce sound levels greater than 180 dB_{rms}, the 180-dB and 190-dB zones are monitored to ensure no marine mammals are in the zone before the sound-producing activity begins and during the activity. The Quintillion project is not expected to produce sound at this level, but the 160-dB zone will be monitored; Pacific walruses in this zone will be assumed to experience Level B take.

Pacific walruses' reactions to noise sources are likely to be variable, depending on the sound levels and frequencies, individuals' prior exposure to the disturbance source, their need or desire to be in the particular habitat or area where they are exposed to the noise, location relative to the disturbance, and whether the disturbance source is visible or odorous. Pacific walruses are typically more sensitive to disturbance when hauled out on land or ice than when they are in the water. The Quintillion cable project will be carried

out away from the edge of the seasonal pack ice and terrestrial haulouts. This will minimize potential interactions with large concentrations of Pacific walruses in the project area, which typically favor sea-ice habitats or land-based haulouts.

Relatively minor reactions, such as increased vigilance, are not likely to disrupt biologically important behavioral patterns and, therefore, do not constitute take by harassment, as defined by the MMPA. Reactions such as fleeing a haulout or departing a feeding area have the potential to disrupt biologically significant behavioral patterns, including nursing, feeding, and resting, and may result in decreased fitness for the affected animal. These reactions meet the criteria for Level B harassment under the MMPA. Significant reactions have been documented in response to vessel noise. For example, icebreaking activities in the Chukchi Sea were observed to displace some Pacific walrus groups up to several kilometers (Brueggeman *et al.* 1990) away.

Approximately 25 percent of groups on pack ice responded by diving into the water; most reactions occurred within 805 m–1 km (0.5–0.6 mi) of the ship. However, groups of hauled-out Pacific walruses beyond these distances generally showed little reaction to icebreaking activities (Brueggeman *et al.* 1990, 1991). Activities producing high levels of noise or occurring in close proximity also have the potential to illicit extreme reactions (Level A harassment) including separation of mothers from young or instigation of stampedes, resulting in death of the offspring or death by trampling respectively.

Cable-laying activities will occur in regions of the Chukchi Sea used by Pacific walruses for foraging. Noise from these activities may cause Pacific walruses to be displaced during feeding, and could have direct effects on food resources. Little research

has been conducted on the effects of sound on invertebrates. Mussels, clams, and crabs do not have auditory systems or swim bladders that could be affected by sound pressure, but squid and other invertebrate species have complex statocysts that resemble the otolith organs of fish that may allow them to detect sounds (Budelmann 1992). Normandeau Associates, Inc. (2012) concluded that invertebrates are sensitive to local water movements and to low-frequency particle accelerations generated by sound sources in their close vicinity. Based on these results, impulsive hydroacoustic surveys could acoustically impact local marine communities, but only within a limited area. From an ecological community standpoint, these impacts are considered minor. No significant reduction in quality or availability of Pacific walrus food resources is expected.

The proposed action will include measures to prevent extreme behavioral reactions to project noise and injury from noise exposure. Measures include minimizing probability of encounters by working during times when sea ice is not present and avoiding terrestrial haulouts. Cable vessels will not operate in areas where doing so would allow animals to be exposed to simultaneous noise from more than one ship. Acoustic ensonification zones will be monitored by PSOs during cable laying to document take and during pre- and post-cable-laying activities to maintain at least an 805-m (0.5-mi) distance from Pacific walruses. These measures are expected to reduce the intensity of disturbance events and to minimize the potential for injuries to animals.

Vessel-Based Activities

Pacific walruses may be disturbed by the sights, sounds, and smells of humans,

machinery, and equipment associated with the proposed vessel-based activities during Quintillion's project. The potential responses of Pacific walruses to these types of disturbances are highly variable and may depend on the context of the encounter. Responses may include: altered headings; increased swimming rates; increased vigilance; changes in dive, surfacing, respiration, feeding, and vocalization patterns; and hormonal stress production (i.e., see Richardson *et al.* 1995; Southall *et al.* 2007; Ellison *et al.* 2011). Pacific walruses use the project area for feeding, resting, and migrating, and for in-season travel, and are most likely to be exposed to the proposed activities while travelling or feeding in areas away from the coast. They are most likely to respond by retreating from cable-laying activities.

The proposed cable route is outside of the HSWUA, which will limit the number of walruses exposed to the project activities, but some Pacific walruses may be foraging outside the HSWUA and could be displaced while using these peripheral feeding areas. Pacific walruses that are displaced while foraging in peripheral feeding areas or while traveling between Hanna Shoal and coastal haulouts are likely to expend some additional energy avoiding the project activities. Effects of displacement within foraging areas and from travel routes will depend on the ability of the affected animals to reach and use alternate areas. There are no anticipated events or activities that will restrict availability of or access to other suitable foraging habitat or alternate travel routes during this project.

Pacific walruses may cross paths with cable-laying and support vessels while migrating or traveling to foraging or resting areas. The reaction of Pacific walruses to vessel traffic is dependent upon vessel type, distance, speed, and an animal's previous

exposure to disturbances. For example, low-frequency diesel engines have been observed to cause fewer disturbances than high-frequency outboard engines (Fay *et al.* 1984).

Pacific walrus may respond to at-sea cable-laying work by exhibiting brief startling reactions or by temporarily vacating the area. There is no long-term biologically significant impact to Pacific walrus expected from the proposed cable-laying activity.

The Chukchi Sea contains important food resources. Trenching for cable burial will impact benthic and epibenthic invertebrates by: (1) crushing with the plough blade, plough skid, or ROV track; (2) dislodgement onto the surface where they may die; and (3) the settlement of suspended sediment away from the trench where it may clog gills or feeding structures of sessile invertebrates or smother sensitive species (BERR 2008). Recolonization of benthic communities in northern latitudes is slow and may take 10 years or more (Conlan and Kvitek 2005; Beuchel and Gulliksen 2008). Seafloor trenching will leave a lasting impact on the seafloor within the cable corridor, but will have only a minor effect on the benthic community in a local area. Linear trenching of this scale will affect approximately 0.3 percent of each square km intersected by the cable route. This is an insignificant portion of the total seafloor available for Pacific walrus foraging. Further, none of the activity will occur in the HSWUA. The overall effects of cable laying on food resources will be inconsequential to Pacific walrus.

Disturbance that occurs while Pacific walrus are resting at a haulout may have the greatest potential for harmful impacts. Disturbance events in the Chukchi Sea have been known to cause groups to abandon land or ice haulouts and occasionally result in trampling injuries or cow-calf separations, both of which are potentially fatal (USFWS

2015a). Anecdotal observations by Pacific walrus hunters and researchers also suggest that males tend to be more tolerant of disturbances than females (Fay *et al.* 1984).

Females with dependent calves are considered least tolerant of disturbance and most likely to flee a haulout. Calves and young animals at terrestrial haulouts are particularly vulnerable to trampling injuries. The risk of stampede-related injuries increases with the number of animals at a haulout.

Quintillion's activities are planned to avoid disturbance of haulouts. Pacific walrus densities in the Chukchi Sea are highest along the edge of the pack ice, and the proposed activities are scheduled to avoid pack ice. The probability of encountering haulouts in pack ice is, therefore, low. Operations may encounter aggregations of Pacific walrus hauled out onto sparse patches of ice or when cable branches are installed at beach landings. Cable end branches will be placed perpendicular to the coastline and adjacent to the respective village to minimize nearshore activities. Landing locations were selected with input from local residents to avoid areas where haulouts may occur. No nearshore work will be done near Point Lay, where large haulouts are likely.

Oil/Fuel Spills

Potential spills could involve fuel, oil, lubricants, solvents, and other substances used aboard the cable ships or support vessels. An oil spill or unpermitted discharge is an illegal act; IHAs do not authorize takes of marine mammals caused by illegal or unpermitted activities. If a spill did occur, the most likely impact upon Pacific walrus would be exposure to spilled oil, which may cause injury, illness, or possibly death

depending on degree and duration of exposure and the characteristics of the spilled substance. A large spill could result in a range of impacts from reduced food availability to chronic ingestion of contaminated food. Spill response activities, especially use of dispersants, may increase the cumulative impact of a spill on Pacific walrus habitat by making oil more bioavailable for uptake by filter feeders and benthic invertebrates (e.g., Epstein *et al.* 2000; Hansen *et al.* 2012). However, the overall effect on the environment of spill response activities given a spill are expected to be lower than the level of impact of the spill alone (USFWS 2015b). The effects of a spill event would depend on the amount, substance, and specific circumstances of the spill, but small spills, such as could occur in connection with the activities proposed by Quintillion, are unlikely to have negative impacts on Pacific walruses.

Estimated Incidental Take of Pacific Walruses by Harassment

The Service anticipates that incidental take of Pacific walruses may occur during Quintillion's cable-laying project. Noise, vessels, and human activities could temporarily interrupt feeding, resting, and movement patterns. The project component most likely to result in take is cavitation noise produced by the thrusters during dynamic positioning of the cable-laying vessel. The elevated underwater noise levels may cause short-term, temporary, nonlethal, but biologically significant changes in behavior that the Service considers to be Level B harassment. Other proposed activities, such as the use of an ROV, tug and barge, dive team, and support vessels are considered to have a limited potential for disturbance leading to take.

For non-impulse sounds, such as those produced by the dynamic positioning thrusters during Quintillion's subsea cable-laying operation, the Service uses the 190-dB_{rms} isopleth to indicate the onset of Level A harassment. The activities are not expected to generate noise above 180 dB_{rms} within frequencies audible to Pacific walruses; therefore, there is no 180-dB or 190-dB mitigation zone from the proposed activities. No project activities are expected to result in take by Level A harassment.

Quintillion provided calculations to estimate take by Level B harassment based on the estimated number of Pacific walruses that may occur within the 120-dB isopleth produced by the dynamic positioning thrusters during the proposed cable-laying operation. The Service generally associates the 160-dB isopleth with Level B harassment. The estimate of take based on the 120-dB isopleth will account for all animals exposed to sound levels higher than 120 dB, including those exposed to 160 dB or greater. The Service evaluated these calculations to determine whether the necessary MMPA findings could be made per Quintillion's petition, but we expect Quintillion's calculations to overestimate the number of Pacific walruses that will be taken. Quintillion provided a full description of the methodology used to estimate take by harassment in its IHA petition, which is also provided in the following paragraphs.

Exposure Estimates and Take Authorization Request

The estimate of the numbers of Pacific walruses that could be taken by Level B harassment from exposure to thruster noise during cable-laying operations was determined by multiplying the maximum seasonal density of Pacific walruses by the total

area in the northern Bering, Chukchi, and southwestern Beaufort Seas (to 153°W) that will be ensonified by sound levels greater than 120 dB_{rms}. The acoustic footprint (total ensonified area) was determined by assuming that dynamic positioning would occur along all trunk and branching lines within the proposed fiber optic cable network, regardless of the cable-laying vessel used or activity conducted.

Various acoustic investigations have modeled distances to the 120-dB isopleth for water depths similar to where Quintillion would be operating with results ranging between 1.4–3.5 km (Samsung 2009; Deepwater Wind 2013). However, these ranges were based on conservative modeling that included maximum parameters and worst-case assumptions. Hartin *et al.* (2011) measured dynamic positioning noise from the 104-m (341-ft) Drill Ship *Fugro Synergy* while operating in the Chukchi Sea. It used 2,500-kW thrusters (more powerful than those used on the *C/S Ile de Brehat*) and produced frequencies of 110–140 Hz. The 90th percentile radius to the 120-dB isopleth was 2.3 km (1.4 mi). Because this radius is a measured value from the same water body where Quintillion’s cable-laying operation would occur, as opposed to a conservatively modeled value from the Atlantic Ocean, this value is used in estimating exposures.

The sum total of submerged cable length is 1,904 km (1,183 mi), but total cable length within Pacific walrus habitat (west of 153°W) is 1,691 km (1,051 mi). Assuming that the radius to the 120-dB isopleth is 2.3 km (1.4 mi), the total ensonified area encompasses an area 1,691 km (1,051 mi) in length and 4.6 km (2.8 mi) in width ($4.6 = 2 \times 2.3$ km) or 7,780 km² (3,004 mi²) total ($4.6 \times 1,691 \approx 7,780$). The area of the 120-dB isopleth at any one instant may be up to 16.6 km² (6.2 mi²) centered on the cable-laying

vessel (radius(r) = 2.3 km; Area = πr^2). A total of 49.8 km² (18.6 mi²) may be ensonified at one time if all three cable-laying vessels are in operation in different locations.

The seasonal distribution of Pacific walrus in the project area is associated with the distribution and extent of broken pack ice (Fay *et al.* 1984; Garlich-Miller *et al.* 2011; Aerts *et al.* 2014). During years of high summer sea-ice cover in the Chukchi Sea, most Pacific walrus are expected to remain with the ice and feed in areas like Hanna Shoal. During low-ice years when the edge of the pack ice recedes north from the Chukchi Sea to the Arctic Basin, where waters are too deep to forage, Pacific walrus typically leave the ice and haul out on beaches (such as near Point Lay).

The best available at-sea density estimates come from Aerts *et al.* (2014), who conducted shipboard surveys for marine mammals in the Chukchi Sea in 2008–2013. Their highest recorded summer densities were in the low-ice years of 2009 (0.040 walrus/km²) and 2013 (0.041 walrus/km²). During the heavy-ice years of 2008 and 2012, densities were 0.001 and 0.006 walrus/km², respectively. Given the continuing trend for light summer ice conditions, it is assumed that 2016 will be similar to 2013. Therefore, the 2013 density estimate of 0.041 walrus/km² is used in the exposure estimates.

The number of Pacific walrus potentially exposed to harassment by the Quintillion cable project was estimated by multiplying the seasonal density (0.041 walrus/km²) by the total area (7,780 km²) that would be ensonified by thruster noise greater than 120 dB_{rms}. This resulted in an estimate of 319 Pacific walrus (0.041 × 7,780 ≈ 319). While this number was generated using a conservative density value from low-ice years, it does not take into account the potential for encounters with large groups

of Pacific walruses moving between Hanna Shoal and Point Lay, or near the Wainwright and Barrow shore landings. During marine mammal observations made for offshore oil and gas activities in the Chukchi Sea in 2015, PSOs recorded 500 sightings of 1,397 individual Pacific walruses (Ireland and Bisson 2016). The average number of walruses per observation was only 1.5, but on several occasions, groups of more than 100 animals were observed. The maximum group size was 243 animals. Taking into consideration the possibility that any encounter might include large groups, Quintillion estimated that up to 500 Pacific walruses may be taken as a result of all activities.

This level of take by harassment is small relative to the most recent stock abundance estimate for the Pacific walrus. A take level of 500 represents only 0.39 percent of the best available estimate of the current population size of 129,000 animals (Speckman *et al.* 2011) ($500/129,000 \approx 0.0039$).

Potential Impacts on the Stock of Pacific Walrus

Although 500 Pacific walruses (~0.39 percent of the population) are estimated to be potentially taken (i.e., potentially disturbed) by Level B harassment by means of exposure to sound levels of 160–190 dB, the expected take is unlikely to have consequences for the health, reproduction, or survival of affected animals. The major source of disturbance is likely to be production of sound by propeller cavitation during dynamic positioning by the cable-laying vessels. Sound production is not expected to reach levels capable of causing harm. Additionally, animals in the area are not expected to incur hearing impairment (TTS or PTS) or non-auditory physiological effects. Level A

harassment (harassment that has the potential to injure Pacific walruses) is not authorized. Pacific walruses exposed to sound produced by the project are likely response to proposed activities with temporary behavioral modification or displacement. With the adoption of the mitigation measures required by this proposed IHA, the Service concludes that the only anticipated effects from noise generated by the proposed action would be short-term behavioral alterations of small numbers of Pacific walruses.

Vessel-based activities could temporarily interrupt the feeding, resting, and movement of Pacific walruses. Because offshore activities are expected to move through the Chukchi Sea, impacts associated with cable laying are likely to be temporary and localized. The anticipated effects include short-term behavioral reactions and displacement of small numbers of Pacific walruses in the vicinity of active operations. Areas affected by the proposed action will be small compared to the regular movement patterns of the population indicating that animals will be capable of retreating from or avoiding the affected areas. Animals that encounter the proposed activities may exert more energy than they would otherwise due to temporary cessation of feeding, increased vigilance, and retreat from the project area, but would be expected to tolerate this without measurable effects on health or reproduction. Adoption of the measures specified in **Mitigation and Monitoring** are expected to reduce the intensity of disturbance events and minimize the potential for injuries to animals.

In sum, no injuries or mortalities are anticipated to occur as a result of Quintillion's subsea cable-laying operation, and none will be authorized. The takes that are anticipated and would be authorized are expected to be limited to short-term Level B

harassment in the form of brief startling reactions or temporary displacement. No long-term biologically significant impacts to Pacific walruses are expected.

Potential Impacts on Subsistence Uses

The MMPA allows Alaska Natives to harvest Pacific walruses for subsistence purposes or for the purposes of creating authentic Native articles of handicraft and clothing, provided this is accomplished in a non-wasteful manner. The proposed cable-laying activities will occur within the marine subsistence areas used by Alaska Natives from the villages of Nome, Wales, Diomede, Kotzebue, Kivalina, Point Hope, Point Lay, Wainwright, Barrow, and Nuiqsut, all of which annually hunt Pacific walruses, except Nuiqsut. Between 2006 and 2015, approximately 1,080 Pacific walruses were harvested annually in Alaska (USFWS unpublished data). The years 2013–2015 were low harvest years; annual harvest from 2006–2012 was 1,308 per year. These estimates are of reported harvest only and have not been corrected for struck and lost animals or underreporting. Most of the harvest (87 percent) was taken by the villages of Gambell and Savoonga on St. Lawrence Island, located 135 km (84 mi) south of the geographic region of the Quintillion cable project.

The villages within the project area harvested an average of 81 Pacific walruses per year from 2006–2015. The small village of Diomede (population of ~115) harvested 26 percent of these (~21 per year). Diomede is located on Little Diomede Island in the center of the Bering Strait. Twice a year the vanguard of the walrus population passes through the Strait when migrating between wintering and summering grounds providing

harvest opportunities for Diomedes hunters. Pacific walrus will also occasionally haul out on Little Diomedes Island during the summer and fall (Garlich-Miller and Burn 1999).

Relative to the village population size (556), Pacific walrus are also an important staple for Wainwright inhabitants. From 2006–2015, approximately 26 Pacific walrus were taken annually. Wainwright also harvests beluga and bowhead whales. The small village of Wales (population ~145), located on the eastern edge of the Bering Strait, harvested an average of six Pacific walrus each year (USFWS unpublished data). Nome also harvested six Pacific walrus per year, and Barrow harvested 14 per year from 2006–2015. Nome and Barrow both have populations of approximately 4,000 people, and Pacific walrus is not as important in the subsistence diet as other resources.

Kotzebue, Kivalina, Point Hope, and Point Lay each harvested fewer than five Pacific walrus annually from 2006–2015, suggesting harvest of this species in these villages is more opportunistic than focused. The communities of Savoonga, Brevig Mission, Chefornak, Elim, Gambell, Hooper Bay, King Island, Kipnuk, Shaktoolik, Shishmaref, Teller, Togiak, and Toksook Bay all harvested one or more per year on average from 2006–2015, but are outside of the geographic region of the proposed action.

There are only a few locations where the proposed project area could overlap with local subsistence harvest areas. These include the portion of the route passing between the villages of Diomedes and Wales, and the branching line into Wainwright. The proposed route is expected to pass about 25 km (16 mi) east of Little Diomedes Island. Presence of ice is needed for any spring Pacific walrus hunts from Diomedes, and the Quintillion cable-laying vessel cannot operate in the presence of ice.

Pacific walrus are harvested from Wainwright and Barrow during July and August from drifting ice floes (Bacon *et al.* 2009). Most are killed within 32 km (20 mi) of shore, but some are taken by both villages as far as 64 km (40 mi) offshore (SRB&A 2012). The Quintillion cable route will pass within 30 km (19 mi) of both villages, and the branching lines will go directly to both Wainwright and Barrow. However, given the hazard ice floes pose to the cable-laying project, Quintillion will not be operating within either village's subsistence hunt area when seasonal sea ice is present. Thus, the cable-laying project is not expected to affect the annual Pacific walrus hunts by either Wainwright or Barrow. For the remaining villages, the annual harvest is relatively low and generally occurs when ice is present, or occurs well away from the proposed cable route (in the case of Point Lay, the route will run well offshore of the village).

Based on the proposed cable-laying timetable relative to the seasonal timing of the various village harvest periods, an overlap in cable laying and Pacific walrus hunting is not expected. However, Quintillion will continue to work closely with the Eskimo Walrus Commission (EWC) and the affected villages to minimize any effects cable-laying activities might have on subsistence harvest, including scheduling the laying of branching lines to avoid periods when Pacific walrus are present.

Mitigation and Monitoring

In order to issue an incidental take authorization under section 101(a)(5)(D) of the MMPA, the Service must, where applicable, set forth the permissible methods of take and other means of effecting the least practicable impact on the Pacific walrus and its habitat,

and on the availability of the species or stock for subsistence uses. Particular attention must be paid to habitat areas of importance, including haulouts and feeding areas. The Service evaluated the project, its potential impacts, and the range of avoidance, mitigation, and minimization measures that could be applied. Monitoring and mitigation measures were developed that will minimize the potential impacts and ensure the least practicable impact to Pacific walruses. As part of these mitigation measures, Quintillion will communicate closely with the EWC and the villages to ensure subsistence harvest is not disrupted. A Plan of Cooperation (POC) has been developed and will be implemented to structure and facilitate coordination with subsistence users. Work will be scheduled to minimize activities in hunting areas during subsistence harvest periods. Quintillion has also developed a Marine Mammal Monitoring and Mitigation Plan (4MP). Habitat areas where Pacific walruses engage in particularly sensitive activities (such as feeding or resting at haulouts) will be avoided. Adaptive measures, such as temporal or spatial limitations, will be applied in response to the presence of Pacific walruses. These documents will be available for public review as specified in **ADDRESSES**.

Avoidance

For the proposed Quintillion subsea cable-laying operations in the Bering, Chukchi, and Beaufort Seas and coastal lands of Alaska, the primary means of minimizing potential consequences for Pacific walrus and subsistence users is routing the cable to avoid concentration areas and important prey habitat. Most of the main trunk line will be laid 30–150 km (19–93 mi) offshore, thereby avoiding nearshore Pacific walrus

concentrations and terrestrial haulouts. Where cable end branches will come ashore, landings will be conducted at right angles to the coastline and immediately adjacent to the respective village (except at Oliktok Point where no village exists) to minimize nearshore activities and avoid areas where haulouts may occur. No work will be done near Point Lay, where large haulouts are likely, or near Hanna Shoal, where feeding aggregations may occur. Cable-laying activities will not be performed by multiple vessels simultaneously where doing so would create overlapping ensonification zones. The proposed action will not occur north of the Bering Strait until July 1 to allow Pacific walrus the opportunity to disperse from the confines of the spring lead system and to minimize interactions with subsistence hunters. Quintillion's operations must avoid sea ice for safety reasons. In doing so, Quintillion will avoid ice habitat used by Pacific walrus. The cable-laying operation will occur at a slow speed of 600 m/hr (0.37 mph), and it is, therefore, highly unlikely that cable-laying activities could cause injury. Collisions between vessels and marine mammals are rare, and when they do occur, they usually involve fast-moving vessels.

Vessel-Based Protected Species Observers (PSOs)

Measures included in the proposed IHA to monitor and reduce the frequency and severity of behavioral responses to the activities will include visual observation by vessel-based PSOs, acoustic monitoring, and adaptive measures in response to observations. The primary purpose of these mitigation measures is to detect marine mammals and avoid vessel interactions during the pre- and post-cable-laying activities.

Due to the nature of the activities, the vessel will not be able to shut down or change speed or direction during cable-laying operations.

Quintillion has proposed to employ PSOs during cable-laying operations to monitor zones of ensonification where the received sound level is 120 dB or greater. Observers will conduct vessel-based monitoring for Pacific walruses during all daylight periods of operation throughout the cable-laying operation. The duties of PSOs will include: watching for marine mammals and identifying Pacific walruses; recording their numbers, locations, distances, and reactions to the survey operations; and documenting take by harassment. A sufficient number of trained PSOs will be required onboard each survey vessel to achieve 100 percent monitoring coverage during all periods of cable-laying operations in daylight with a maximum of 4 consecutive hours on watch and a maximum of 12 hours of watch time per day, per PSO. Nighttime observations will be made opportunistically using night-vision equipment.

Each vessel will have an experienced field crew leader to supervise the PSO team and will contain individuals with prior experience as marine mammal monitoring observers, including experience specific to Pacific walrus observations. New or inexperienced PSOs would be paired with an experienced PSO so that the quality of marine mammal observations and data recording is kept consistent. Resumes for candidate PSOs will be made available for the Service to review. All observers will have completed a training course designed to familiarize individuals with monitoring and data collection procedures. The PSOs shall be provided with Fujinon 7 × 50 or equivalent binoculars. Laser range finders (Leica LRF 1200 or equivalent) will be available to assist

with distance estimation.

All location, weather, and marine mammal observation data will be recorded onto a standard field form or database. Global positioning system and weather data will be collected at the beginning and end of a monitoring period and at every half-hour in between. Position data will also be recorded at the change of an observer or the sighting of a Pacific walrus. Enough position data will be collected to map an accurate charting of vessel travel. Observations of Pacific walruses will also include group size and composition (adults/juveniles), behavior, distance from vessel, presence in any applicable ensonification zone, and any apparent reactions to the project activities. Data forms or database entries will be made available to the Service upon request.

Acoustic Monitoring

Quintillion plans to conduct sound source verification and contribute to passive acoustic monitoring efforts. Acoustic injury to Pacific walruses can occur if received noise levels exceed 190 dB. The cable-laying activities are not expected to produce noise levels capable of acoustic injury, and Quintillion is not requesting authorization of take by Level A harassment. Therefore, no shutdown zones will be necessary for this activity. However, Level B take may occur due to exposure to sound at greater than 160-dB levels. For this reason, observers must monitor the 160-dB ensonification zone for the presence of Pacific walruses. Quintillion has committed to monitoring the 120-dB zone for marine mammals. The 160-dB zone is well within the 120-dB zone and, therefore, will be included in the monitoring area.

Sound source verification will be conducted during early-season operation of one cable-lay ship and anchor-handling tug. Results will be used to calibrate the 120-dB and 160-dB ensonification zones. If sound source verification indicates that sound levels produced during operations will be higher than expected (greater than 190 dB_{rms} at frequencies less than 40 kHz), Quintillion will coordinate with the Service to evaluate additional mitigation options.

Passive acoustic monitoring will be conducted by the 2016 joint Arctic Whale Ecology Study (ARCWEST)/Chukchi Acoustics, Oceanography, and Zooplankton Study Extension (CHAOZ-X) with support from Quintillion. The current mooring locations for the passive acoustic monitoring portion of the joint program align closely with the proposed Quintillion cable-lay route. Acoustic data from these locations in 2016 will provide information on the distribution and composition of the marine mammal community and the acoustic effects of the cable-lay activity on the local environment where the route passes close to these stations.

Adaptive Measures

When the cable ships are traveling in Alaskan waters to and from the project area (before and after completion of cable laying), and during all travel by support vessels, operators will implement the following measures:

- Avoid potential interaction with any and all Pacific walrus by taking reasonable precautions such as changing speed or course when Pacific walrus are observed within 805 km (0.5 mi). Changes in speed or course

will be achieved gradually to avoid abrupt maneuvers whenever possible.

- Do not approach Pacific walrus within 805 km (0.5 mi).
- Reduce speed to less than 2.6 meters per second (m/s) (5 kn) when visibility drops (such as during inclement weather, rough seas, or at night) to avoid the likelihood of collision with Pacific walrus. During cable laying, the normal vessel travel speed is less than 2.6 m/s (5 kn).
- Vessels may not be operated in such a way as to separate members of a group of Pacific walrus from other members of the group.
- Activities are not planned near known haulouts, but if Pacific walrus are observed on land, vessels will maintain a 1.6 km (1mi) separation distance.
- Any behavioral response indicating more than Level B take of a Pacific walrus due to project activities shall be reported to the Service within 48 hours, including separation of mother from young, stampeding haulouts, injured animals, and animals in acute distress.

Measures To Reduce Impacts to Subsistence Users

The Service requires holders of an IHA to cooperate with the Service and other designated Federal, State, and local agencies to monitor the impacts of proposed activities on marine mammals and subsistence users. Quintillion has coordinated with the Service, NOAA–Fisheries, and the Army Corps of Engineers, along with communities and subsistence harvest organizations. Specifically, Quintillion has coordinated with EWC, Barrow Whaling Captains Association members and board, the Community of

Wainwright, Wainwright Whaling Captains, Point Hope Community, Tikigaq Whaling Captains, the Northwest Arctic Borough, Kotzebue City Management, the Community of Kotzebue, Maniilaq Association, Kawerak Inc., the Nome Community, and Kuukpik Corporation. Communications will continue throughout the project and may include public service announcements on KBRW and KOTZ radio stations, messaging on the Alaska Rural Communications Service television network, newsletters, and 1-800 comment lines. At the end of the cable installation process, Quintillion will conduct community meetings at the affected landing villages identified in this document to discuss and summarize project completion. In coordination with these agencies and organizations, Quintillion has agreed to the following actions to minimize effects on subsistence harvest by Alaska Native communities:

- Plan routes in offshore waters away from nearshore subsistence harvest areas.
- Schedule operations to avoid conflict with subsistence harvest.
- Develop and implement a POC to coordinate communication.
- Participate in the Automatic Identification System for vessel tracking to allow the cable-laying fleet to be located in real time.
- Distribute a daily report by email to all interested parties. Daily reports will include vessel activity, location, subsistence/local information, and any potential hazards.

Reporting Requirements

Holders of an IHA must keep the Service informed of the impacts of authorized

activities on Pacific walruses by: (1) notifying the Service at least 48 hours prior to commencement of activities; (2) immediately reporting any occurrence of injury or mortality due to project activities; (3) submitting project reports; and (4) notifying the Service upon project completion or at the end of the work season.

Weekly reports will be submitted to the Service each Thursday during the weeks that cable-laying activities take place. The reports will summarize project activities, monitoring efforts conducted by PSOs, results of sound source verification, Pacific walruses detected, the number of Pacific walruses exposed to sound levels greater than 160 dB, and any behavioral reactions to project activities.

A technical report will be submitted to the Service within 90 days after the end of the project or the end of the open-water season, whichever comes first. The report will describe all monitoring activities conducted during cable-laying activity and provide results. The report will include the following:

- Summary of monitoring effort (total hours of monitoring, activities monitored, number of PSOs).
- Summary of project activities completed and additional work yet to be done.
- Analyses of the factors influencing visibility and detectability of marine mammals (e.g., sea state, number of observers, and fog/glare).
- Discussion of location, weather, ice cover, sea state, and other factors affecting the presence and distribution of Pacific walruses.
- Number, location, distance/direction from the vessel, and initial behavior of any sighted Pacific walruses upon detection.

- Dates, times, locations, heading, speed, weather, and sea conditions (including sea state and wind force), as well as description of the specific cable-laying activity occurring at the time of the Pacific walrus observation.
- Estimated distance from the animal or group at closest approach and at the end of the encounter.
- An estimate of the number of Pacific walruses that have been exposed to the thruster noise (based on visual observation) at received levels greater than or equal to 120 dB_{rms} and 160 dB_{rms} with a description of the responses (changes in behavior).
- Estimates of uncertainty in all take estimates, with uncertainty expressed by the presentation of confidence limits, a minimum-maximum, posterior probability distribution, or another applicable method, with the exact approach to be selected based on the sampling method and data available.
- A description of the mitigation measures implemented during project activities and their effectiveness for minimizing the effects of the proposed action on Pacific walruses.
- An analysis of the effects of survey operations on Pacific walruses.
- Occurrence, distribution, and composition of Pacific walrus sightings, including date, water depth, numbers, age/size/gender categories (if determinable), group sizes, visibility, location of the vessel, and location of the animal (or distance and direction to the animal from the vessel) in the form of electronic database or spreadsheet files.

- A discussion of any specific Pacific walrus behaviors of interest.

Notification of Injured or Dead Marine Mammals

In the unexpected event that the specified activity causes the take of a Pacific walrus in a manner not authorized by the IHA such as an injury or mortality (e.g., ship-strike), Quintillion must report the incident to the Service within 24 hours. The report will include the following information:

- Time, date, and location (latitude/longitude) of the incident;
- Name and type of vessel involved;
- Vessel's speed during and leading up to the incident;
- Description of the incident;
- Description of all sound sources used in the 24 hours preceding the incident;
- Water depth;
- Environmental conditions (e.g., wind speed and direction, cloud cover, and visibility);
- Description of all Pacific walrus observations in the 24 hours preceding the incident;
- Description of the animal(s) involved;
- Fate of the animal(s); and
- Photographs or video footage of the animal(s) (if equipment is available).

In the event that Quintillion discovers an injured or dead Pacific walrus, and the lead PSO determines that the injury or death is not associated with or related to the

activities authorized in the IHA (e.g., previously wounded animal, carcass with moderate to advanced decomposition, or scavenger damage), Quintillion must report the incident to the Service within 48 hours of the discovery. Quintillion will provide photographs or video footage (if available) or other documentation to the Service.

Mitigation Conclusions

The Service has carefully evaluated Quintillion's proposed mitigation measures and considered a range of other measures of ensuring that the cable project will have the least practicable impact on Pacific walruses and their habitat. Our evaluation considered the following: (1) the manner in which, and the degree to which, the successful implementation of the measures are expected to minimize adverse impacts to Pacific walruses; (2) the proven or likely efficacy of the measures to minimize adverse impacts as planned; and (3) the practicability of the measures for applicant implementation.

The expected effects of the prescribed mitigation measures are as follows:

- Avoidance of injury or death of Pacific walruses.
- Reduction in the numbers of Pacific walruses exposed to activities expected to result in the take of marine mammals.
- Reduction in the number of times individuals would be exposed to project activities.
- A reduction in the intensity of exposures to activities expected to result in the take of Pacific walruses.
- Avoidance or minimization of adverse effects to Pacific walrus habitat,

especially haulout areas, sea ice, and foraging areas.

- An increase in the probability of detecting Pacific walruses through vessel-based monitoring, allowing for more effective implementation of mitigation measures.
- Reduction in the likelihood of affecting Pacific walruses in a manner that would alter their availability for subsistence uses.

Based on our evaluation of the proposed mitigation measures, the Service has preliminarily determined that these measures provide the means of effecting the least practicable impact on Pacific walruses and their habitat, including feeding areas and haulouts. These measures will also minimize any effects the project will have on the availability of the species or stock for subsistence uses.

Findings

Small Numbers

For small take analyses, the statute and legislative history do not expressly require a specific type of numerical analysis, leaving the determination of “small” to the agency’s discretion. In this case, we propose a finding that the Quintillion project will affect up to 500 Pacific walruses, and that this constitutes a small number of animals. Factors considered in our small numbers determination include the number of Pacific walruses in the affected area, the size of the affected area relative to available habitat, and the expected efficacy of mitigation measures.

First, the number of Pacific walruses inhabiting the proposed impact area is small

relative to the size of the Pacific walrus population. The potential exposures for the 2016 cable-laying period, based on estimated density plus an additional allowance for the clumped distribution of Pacific walruses, is approximately 500 animals. This is about 0.39 percent of the population size of 129,000 estimated by Speckman *et al.* (2011).

Second, the area where the proposed activities would occur is a relatively small fraction of the available habitat of the Pacific walrus. Cable-laying activities will have temporary impacts to Pacific walrus habitat along a 1,691-km (1,051-mi) linear corridor of marine waters and coastal land of Alaska. Sound levels greater than 120 dB_{rms} may be produced by propeller cavitation in an area of up to 16.6 km² (6.2 mi²) centered on each cable ship. Up to three ships may operate in different locations at one time, resulting in a combined area of ensonification up to 49.8 km² (18.6 mi²). Trenching of the seafloor may disturb the benthos along the cable route, affecting a total area of approximately 6 km² (2.3 mi²). These impacts will be temporary and localized, and will not impede the use of an area after the project activities in that area are complete.

Third, monitoring requirements and mitigation measures are expected to limit the number of incidental takes. The cable route will avoid sea ice, terrestrial haulouts, and important feeding habitat. Adaptive mitigation measures will be applied by the support fleet and when cable ships are in transit. These measures will include changes in speed or course when Pacific walruses could come within 805 m (0.5 mi), and are expected to help prevent take by Level A harassment and to minimize take by Level B harassment. Activities will be monitored by PSOs, and unexpected impacts and will be reported to the Service. No take by injury or death is anticipated or authorized. Monitoring and reporting

will allow the Service to reanalyze and refine future take estimates and mitigation measures as activities continue in Pacific walrus habitat in the future. Should the Service determine, based on monitoring and reporting, that the effects are greater than anticipated the authorization may be modified, suspended, or revoked.

For these reasons, we propose a finding that the Quintillion project will involve takes by Level B harassment of only a small number of animals.

Negligible Impact

The Service proposes a finding that any incidental take by harassment resulting from the proposed Quintillion cable-laying operation cannot be reasonably expected to, and is not reasonably likely to, adversely affect the Pacific walrus through effects on annual rates of recruitment or survival, and would, therefore, have no more than a negligible impact on the species or stock. In making this finding, we considered the best available scientific information, including: (1) the biological and behavioral characteristics of the species; (2) the most recent information on species distribution and abundance within the area of the proposed action; (3) the potential sources of disturbance during the proposed action; and (4) the potential responses of Pacific walruses to this disturbance. In addition, we reviewed material supplied by the applicant, other operators in Alaska, our files and datasets, data acquired from NOAA–Fisheries, published reference materials, and Pacific walrus experts.

Pacific walruses are likely to respond to proposed activities with temporary behavioral modification or displacement. These reactions are unlikely to have

consequences for the health, reproduction, or survival of affected animals. The major source of disturbance is likely to be production of sound by propeller cavitation during dynamic positioning by the cable-laying vessels. Sound production is not expected to reach levels capable of causing harm, and Level A harassment (harassment that has the potential to injure Pacific walruses) is not authorized. Sound source verification will be conducted to ensure that this assessment is accurate.

Responses of Pacific walruses to disturbance would most likely include diving or swimming away from the sound source, which may cause temporary interruption of foraging, resting, or other natural behaviors. Affected animals are expected to resume normal behaviors soon after exposure, with no lasting consequences. Thus, although 500 Pacific walruses (~0.39 percent of the population) are estimated to be potentially taken (i.e., potentially disturbed) by Level B harassment from exposure to sound levels of 160–190 dB, we do not expect this type of harassment to affect annual rates of recruitment or survival or result in adverse effects on the species or stock.

Our proposed finding of negligible impact applies to incidental take associated with the proposed activities as mitigated by the avoidance and minimization measures. These mitigation measures are designed to minimize interactions with and impacts to Pacific walruses. These measures, and the monitoring and reporting requirements, are required for the validity of our finding and are a necessary component of the IHA.

For these reasons, we propose a finding that the Quintillion project will have a negligible impact on Pacific walruses.

Impact on Subsistence

We propose a finding that the anticipated harassment caused by the proposed activities would not have an unmitigable adverse impact on the availability of Pacific walrus for taking for subsistence uses. In making this finding, we considered the timing and location of the proposed activities and the timing and location of subsistence harvest activities and patterns, as reported through the Service's Marking, Tagging, and Reporting Program in the area of the proposed action. We also considered the applicant's consultation with potentially affected subsistence communities and proposed measures for avoiding impacts to subsistence harvest.

Required Determinations

National Environmental Policy Act (NEPA)

We have prepared a draft Environmental Assessment (EA) (see **ADDRESSES**) in accordance with the NEPA (42 U.S.C. 4321 *et seq.*). We have preliminarily concluded that approval and issuance of an authorization for the nonlethal, incidental, unintentional take by Level B harassment of small numbers of Pacific walrus in Alaska during cable-laying activities conducted by Quintillion would not significantly affect the quality of the human environment, and that the preparation of an environmental impact statement for these actions is not required by section 102(2) of NEPA or its implementing regulations.

Endangered Species Act

Under the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 *et seq.*)

all Federal agencies are required to ensure the actions they authorize are not likely to jeopardize the continued existence of any threatened or endangered species or result in destruction or adverse modification of critical habitat. The range-wide status of Pacific walrus was reviewed in response to a 2008 petition to list this species. On February 10, 2011 (76 FR 7634), the listing of walrus was found to be warranted, but precluded due to higher priority listing actions (i.e., walrus is a candidate species). Consistent with established agency policy, the Service's Ecological Service program will evaluate whether the effects of the proposed activities will jeopardize the continued existence of the Pacific walrus prior to issuance of an IHA. Our evaluation and finding will be made available on the Service's website at <http://www.fws.gov/alaska/fisheries/mmm/iha.htm>.

Government-to-Government Relations with Native American Tribal Governments

In accordance with the President's memorandum of April 29, 1994, "Government to Government Relations with Native American Tribal Governments" (59 FR 22951), Executive Order 13175, Department of the Interior Secretarial Order 3225 of January 19, 2001 (Endangered Species Act and Subsistence Uses in Alaska (Supplement to Secretarial Order 3206)), Department of the Interior Secretarial Order 3317 of December 1, 2011 (Tribal Consultation and Policy), Department of the Interior Memorandum of January 18, 2001 (Alaska Government-to-Government Policy), the Department of the Interior's manual at 512 DM 2, and the Native American Policy of the U.S. Fish and Wildlife Service, dated January 20, 2016, we acknowledge our responsibility to communicate and work directly on a Government-to-Government basis with federally

recognized Alaska Native Tribes in developing programs for healthy ecosystems, to seek their full and meaningful participation in evaluating and addressing conservation concerns for listed species, to remain sensitive to Alaska Native culture, and to make information available to Alaska Natives.

Furthermore, and in accordance with Department of the Interior Policy on Consultation with Alaska Native Claims Settlement Act of 1971 (ANCSA) Corporations, dated August 10, 2012, we likewise acknowledge our responsibility to communicate and work directly with ANCSA Corporations in evaluating and addressing conservation concerns for listed species, to remain sensitive to Alaska Native culture, and to make information available to ANSCA Corporations.

We have evaluated possible effects of the proposed activities on federally recognized Alaska Native Tribes. Through the IHA process identified in the MMPA, the applicant presented a communication process, culminating in a POC with the Native communities most likely to be affected, and engaged these communities in numerous informational meetings.

To facilitate co-management activities, the Service maintains cooperative agreements with the EWC and the Qayassiq Walrus Commission (QWC). The cooperative agreements fund a wide variety of management issues, including co-management operations, biological sampling programs, harvest monitoring, collection of Native knowledge in management, international coordination on management issues, cooperative enforcement of the MMPA, and development of local conservation plans. To help realize mutual management goals, the Service, EWC, and QWC hold meetings to

discuss future expectations and outline a shared vision of co-management.

Through various interactions and partnerships, we have determined that the issuance of this proposed IHA is appropriate. We invite continued discussion about improving our coordination and information exchange, including through the IHA/POC process, as may be requested by Tribes or other Native groups.

Proposed Authorization

The Service proposes to issue an IHA for the nonlethal, incidental, unintentional take by Level B harassment of small numbers of Pacific walrus during cable-laying activities in the marine waters of Alaska and impacted coastal communities, as described in this document and in the applicant's petition. We neither anticipate nor propose authorization for intentional take or take by injury or death. The final IHA would be effective immediately after the date of issuance through November 15, 2016.

The final IHA would also incorporate the mitigation, monitoring, and reporting requirements described in this proposal. The applicant would be expected and required to implement and fully comply with those requirements. If the nature or level of activity changes or exceeds that described in this proposal and in the IHA petition, or the nature or level of take exceeds that projected in this proposal, the Service will reevaluate its findings. The Secretary may modify, suspend, or revoke the authorization if the findings are not accurate or the mitigation, monitoring, and reporting requirements described herein are not being met.

Brian S. Glaspell

Acting Regional Director, Alaska Region.

June 3, 2016

Date

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